

DEVICE FOR MEASURING THE TEMPERATURE OF A GAS FLOW

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DEVICE FOR MEASURING THE TEMPERATURE OF A GAS FLOW

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Devices containing chromel-copel thermocouples are used for measuring the temperatures of a gas flow; the hot junctions of these thermocouples are openly distributed inside of the deflectors fastened to the shaft (holder) across its axis.

The known devices of such a type do not ensure a sufficiently high accuracy of measurement.

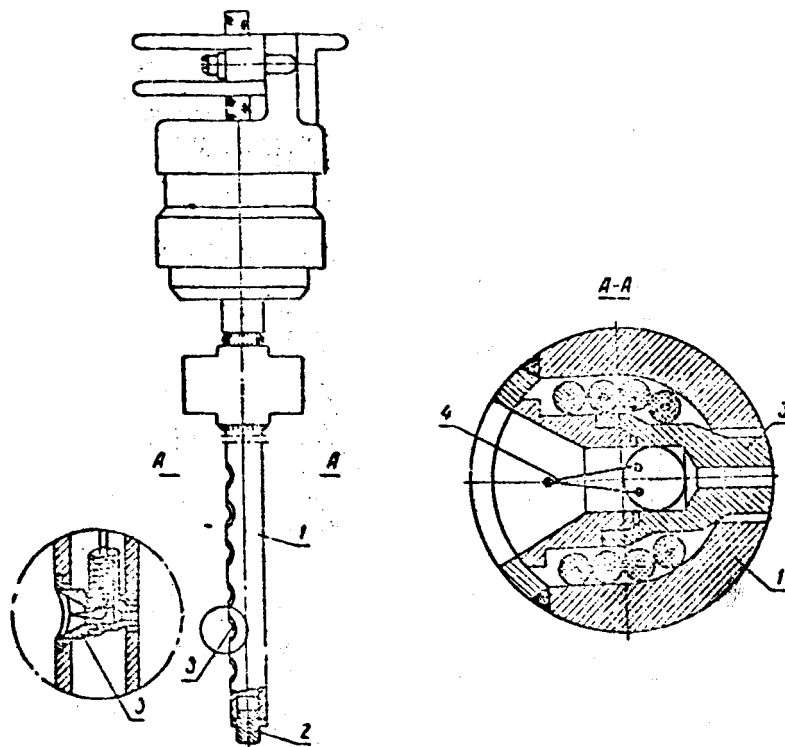
The device proposed is free from the shortcoming mentioned as a result of the fact that the ends of the deflectors are embedded flush with the shaft.

The device (see drawing) has the configuration of a cylindrical shaft (1) (holder) which is inserted into the gas flow and whose free end is equipped with a catch (2) which is attachable to the wall of the test piece. Several deflectors are embedded in the shaft flush with it (3) at different distances from each other; their axes are perpendicular to the axis of the shaft (holder). The hot junctions of the thermocouples (4) are distributed inside the deflectors; these junctions have electrodes made of chromel and copel.

The deflector at the input has an aperture with conical chamfering and there is an aperture of 0.5 to 1 mm in diameter at the outlet for the outflow of the gas. One junction of the thermocouple is located in each deflector. The electrodes inside of the shaft of the thermocouple are insulated from each other by means of an asbestos string impregnated with a mixture consisting of molten glass, quartz powder, and caolin. This insulation allows the thermocouples to operate without failure in a temperature range of from -30 to +500° C.

THE SUBJECT OF THE INVENTION

It is a device for measuring gas flow temperatures, containing chromel-copel thermocouples whose hot junctions are openly distributed inside the deflectors which are fastened to the shaft (holder) perpendicular to its axis, unique in that the deflector ends are embedded flush with the shaft for purposes of ensuring greater accuracy in measurement.



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